

Multisystem Inflammatory Syndrome in Children (MIS-C) Associated with COVID-19

Date: June 30, 2021

Public Health Message Type: ☐ Alert ☒ Advisory ☒ Update ☐ Information

Intended Audience: ☒ All public health partners ☒ Healthcare providers ☒ Infection preventionists
☒ Local health departments ☐ Schools/Childcare centers ☐ ACOs
☐ Animal health professionals ☐ Other:

Key Points:

- Multisystem Inflammatory Syndrome in Children (MIS-C) is a condition where different body parts can become inflamed, including the heart, lungs, kidneys, brain, skin, eyes, or gastrointestinal organs. Children with MIS-C may present with a persistent fever and a variety of signs and symptoms including elevated laboratory markers of inflammation.
- Cases have occurred in children testing positive for current or recent infection by SARS-CoV-2 or who have had an epidemiologic link to a COVID-19 case.
- While limited information is currently available about risk factors, pathogenesis, clinical course and treatment for MIS-C, early recognition and specialist referral are essential, including critical care if warranted and CDC has received reports of patients with recurrent MIS-C.

Action Items:

- Healthcare providers who have cared for or are caring for patients younger than 21 years of age meeting MIS-C criteria should continue to report suspected cases to the local health department where the patient resides. Contact information is available at: localhealth.nj.gov
- The [Case Report Form](#) should be completed on any patient who meets the criteria mentioned on the next page of this document. This newest version includes questions addressing vaccination status as requested by CDC and supersedes the previous form sent in the last LINC communication on June 26, 2020.
 - All completed case report forms should be faxed to (609) 826-5972 or sent via secure email to pedcov@doh.nj.gov. The Communicable Disease Service (CDS) staff will review forms for missing information and coordinate securing medical records and conduct chart abstraction if necessary.
- Healthcare providers should report recurrent cases of MIS-C to the local health department where the patient resides.
- Healthcare Providers should continue to report any adverse events, including anaphylaxis, that occur in a recipient following COVID-19 vaccination, via the [Vaccine Adverse Event Reporting System](#) (VAERS). If the patient meets MIS-C case definition, providers should list the criteria by which the patient meets the case definition in the free-text section entitled: "Describe the adverse event(s), treatment, and outcome(s), if any: (symptoms, signs, time course, etc.)"
- All the information collected on these cases will be included within CDRSS and summary statistics will continue to be included on the [NJDOH website](#).

Contact Information:

- Email pedcov@doh.nj.gov or contact CDS at (609) 826-5964 during business hours.

Background:

The New Jersey Department of Health (NJDOH) is working closely with CDC¹ and neighboring states to investigate reported cases of MIS-C associated with COVID-19. As of June 29, 2021, NJDOH has identified 128 patients that meet the MIS-C criteria listed below.

Case Definition:

- An individual aged <21 years presenting with feverⁱ, laboratory evidence of inflammationⁱⁱ, and evidence of clinically severe illness requiring hospitalization, with multisystem (>2) organ involvement (cardiac, renal, respiratory, hematologic, gastrointestinal, dermatologic, or neurological); AND
- No alternative plausible diagnosis; AND
- Positive for current or recent SARS-CoV-2 infection by RT-PCR, serology, or antigen test; or exposure to a suspected or confirmed COVID-19 case within the 4 weeks prior to the onset of symptoms

ⁱFever $\geq 38^{\circ}\text{C}$ (100.4°F) for ≥ 24 hours, or report of subjective fever lasting ≥ 24 hours

ⁱⁱIncluding, but not limited to, one or more of the following: an elevated C-reactive protein (CRP), erythrocyte sedimentation rate (ESR), fibrinogen, procalcitonin, d-dimer, ferritin, lactic acid dehydrogenase (LDH), or interleukin 6 (IL-6), elevated neutrophils, reduced lymphocytes, and low albumin

Comments:

- Some individuals may fulfill full or partial criteria for Kawasaki² disease but should be reported if they meet the case definition for MIS-C
- Consider MIS-C in any pediatric death with evidence of SARS-CoV-2 infection

Additional Considerations:

- This syndrome should be considered by pediatricians and specialists, particularly when other microbial etiologies have not been identified.
- Early recognition by pediatricians and prompt referral to an in-patient specialist, including to critical care is essential.
- Pediatricians and specialists should elicit any recent history of illness with COVID-19 or close contact with individuals who are known to have COVID-19, as well as COVID-19 vaccination status.
- Most patients who have presented with this syndrome have tested positive for the SARS-COV-2 virus on diagnostic, molecular testing or on serological testing for corresponding antibodies.
- Patients should receive supportive treatment and healthcare providers should provide disease-specific treatments as appropriate.
- There are currently no published guidelines or CDC recommendations regarding treatment³ for MIS-C and no studies comparing efficacy of various treatment options, but anti-inflammatory measures have included the frequent use of intravenous immunoglobulin (IVIG) and steroids.

¹ <https://www.cdc.gov/coronavirus/2019-ncov/hcp/pediatric-hcp.html>

² <https://www.cdc.gov/kawasaki/index.html>

³ <https://www.cdc.gov/mis-c/hcp/>